Partnership Programs

Office of Transportation and Air Quality
Office of Air and Radiation

Briefing for the CAAAC

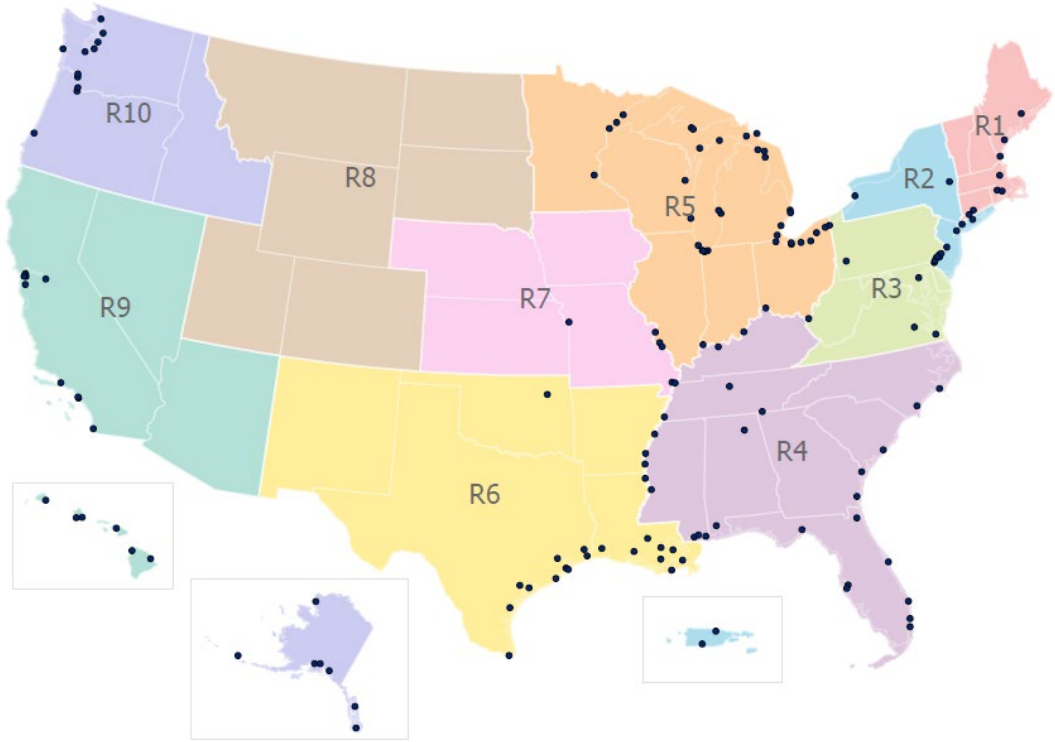
November 7, 2019

OTAQ's Partnership Programs

- Complementary to regulatory program
- Address important air quality issues associated with existing fleet
- Extremely partner driven
  - Collaborations to help them do their job
- Consumer (individual and commercial) education to help inform purchasing and activity decisions

Update on EPA's Ports Initiative

Army Corps "Principal Ports" and EPA Regions



Launched MSTRS Ports Initiative Workgroup
May 2014

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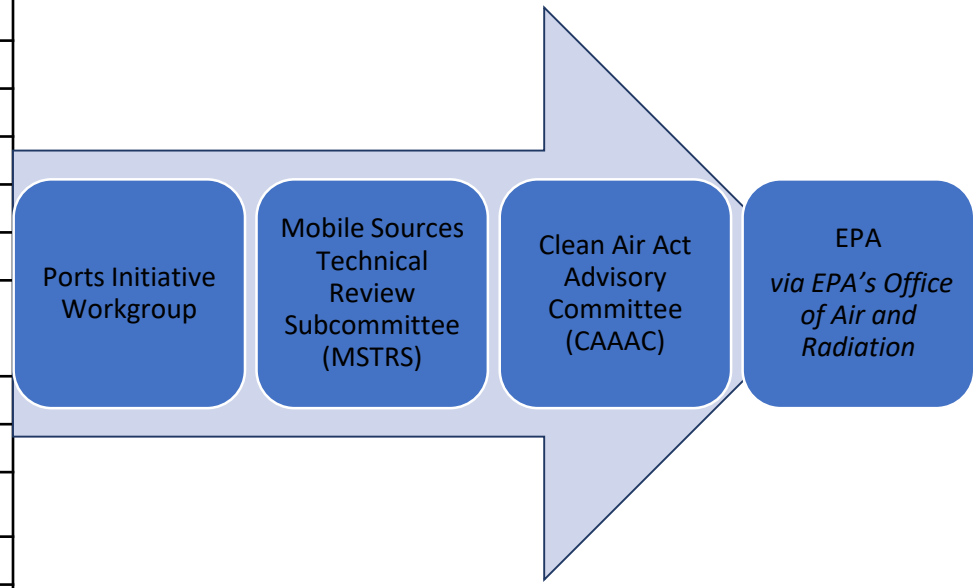
Ports:	Maryland, Charleston, Long Beach, New Orleans, Virginia
Terminals:	Ports America
Shippers:	Cargill, Walmart, HP
Equipment:	Caterpillar, Manufacturers of Emission Controls Association
Marine:	Maersk Line
Rail:	Burlington Northern Santa Fe
Trucking:	Evans Delivery
Port Community Advocates:	East Yard Communities for Environmental Justice, Southeast CARE Coalition, Steps Coalition
Tribes:	Fond du Lac Air Program
NGOs:	Environmental Defense Fund, Natural Resources Defense Council
Research/analysis:	International Council on Clean Transportation
Government:	New Jersey DEP, South Carolina DHEC, MARAD, CMTS
Non-voting:	American Association of Port Authorities, StarCrest
EPA support:	Office of Transportation Air Quality , Office of Environmental Justice, Office of Water, Region 1, Region 2, Region 6, Region 9



Received CAAAC recommendations September 2016

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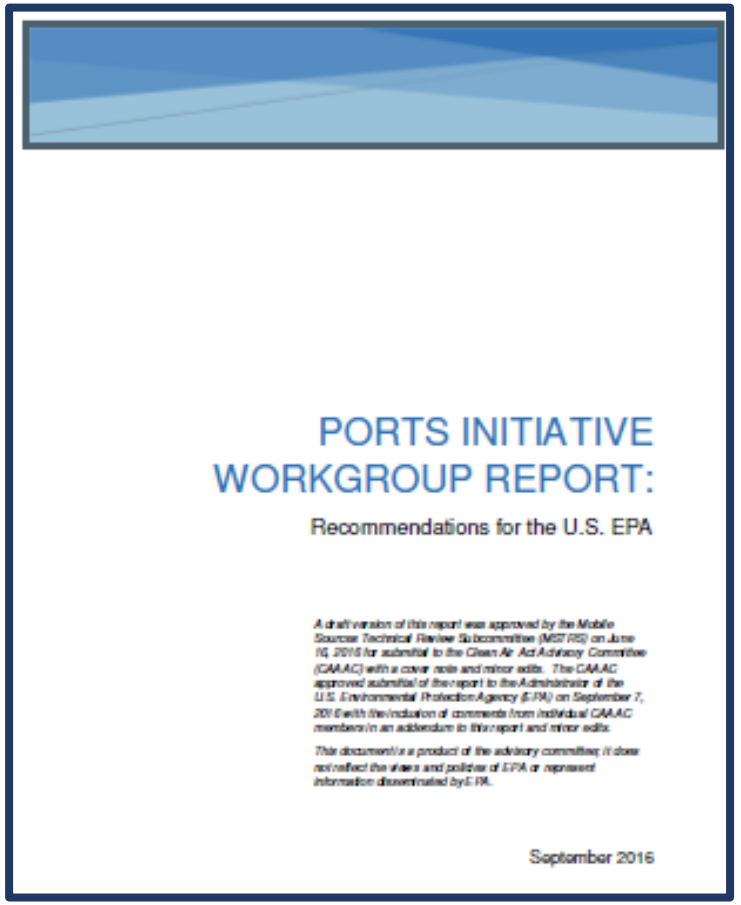
Overarching recommendation: provide funding, technical resources, and expertise to enable and encourage environmental improvements.

Focal Areas

- Increasing and Targeting Funding
- Community-Port Engagement
- Guidance on Inventories and Metrics
- Guidance on Emission Reduction Strategies
- Coordinating Relevant Government Programs
- Information Clearinghouse and Communications


PORTS INITIATIVE WORKGROUP REPORT:

Recommendations for the U.S. EPA

A draft version of this report was approved by the Mobile Sources Technical Review Subcommittee (MSTRS) on June 10, 2016 for submittal to the Clean Air Act Advisory Committee (CAAAC) with a cover note and minor edits. The CAAAC approved submittal of the report to the Administrator of the U.S. Environmental Protection Agency (EPA) on September 7, 2016 with the inclusion of comments from individual CAAAC members in an addendum to the report and minor edits.

This document is a product of the advisory committee; it does not reflect the views and policies of EPA or represent information disseminated by EPA.

September 2016

www.epa.gov/caaac

Working to raise port industry standard practices

Through EPA tools and assistance in the five program areas, we are accelerating adoption of:

- **Clean air planning practices** (emissions inventories, clean air plans, community engagement) that inform strategic clean air investments

- **Clean technologies and other strategies**

40% of top 150 ports are located in NAAQS nonattainment or maintenance areas

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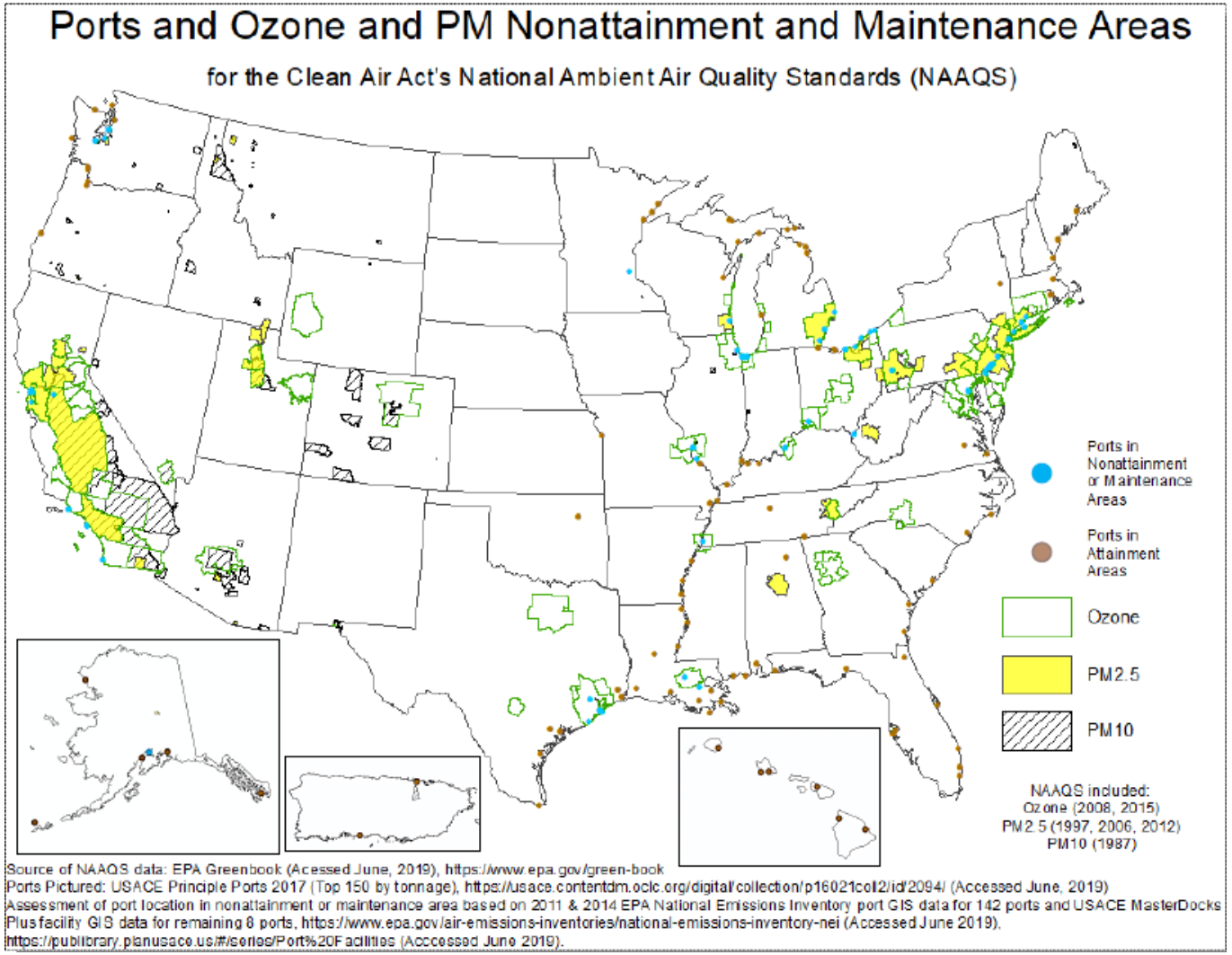
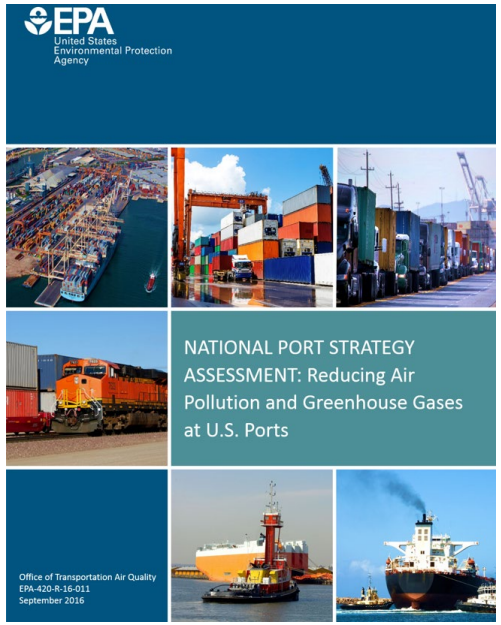
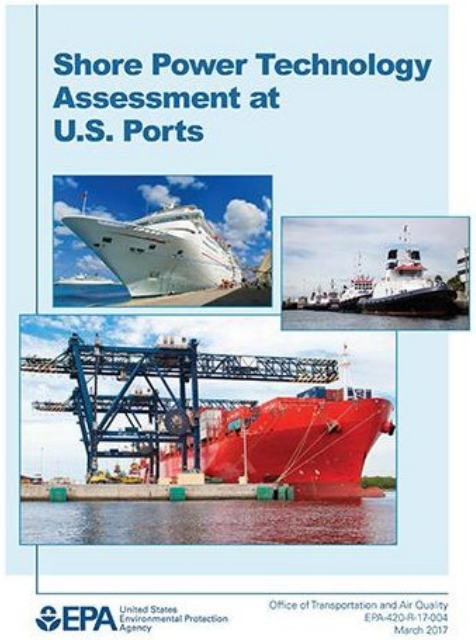


Providing tools to help identify smart infrastructure investments

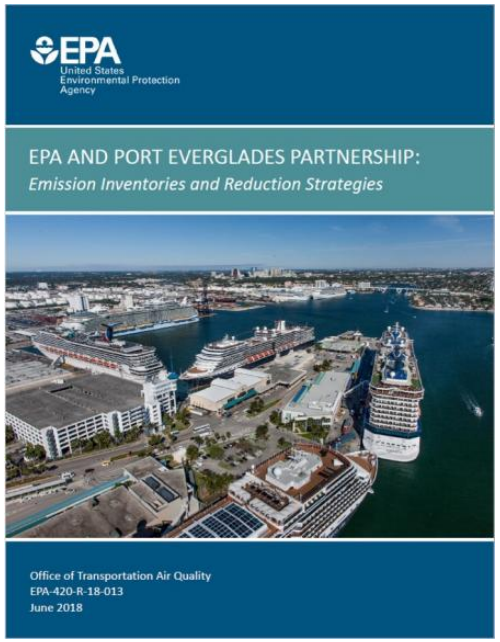
Technical Resources



National Port Strategy Assessment: Reducing Air Pollution and Greenhouse Gases at U.S. Ports
September 2016



Shore Power Technology Assessment at U.S. Ports
April 2017



EPA, Port Everglades Report Shines Light on New Methods for Analyzing Potential Air Pollution Reductions
June 2018

Stay tuned
Other upcoming EPA resources

Technical Resources

Update to port inventory guidance *(published in 2009) to reflect new methods and emissions factors*
Public review draft target date: Dec 2019

Assessment of fuel cell applications at ports

Type: Rail	Data Collection Information	Evaluation	Further Actions and Performance Targets
Metric/Indicator			
Average Engine Tier and % Tier 2 or older	• A port or terminal can track the engine tier of the locomotives that operate within port boundaries • The Inventory Guidance provides information on collecting the engine tier for locomotives	It is suggested that the port authority/operator track the average engine tier of these locomotives as a general metric, as well as the percent of locomotives that are Tier 2 or older to identify the worst performing equipment	Ports/terminals can develop a plan to incentivize or fund the repowering and replacing of old locomotives. This plan can include specific goals for increasing the average model year and decreasing the percent Tier 2 or older

Best practices for metrics and indicators *that ports can use to measure, evaluate and set goals to improve air quality and community engagement*

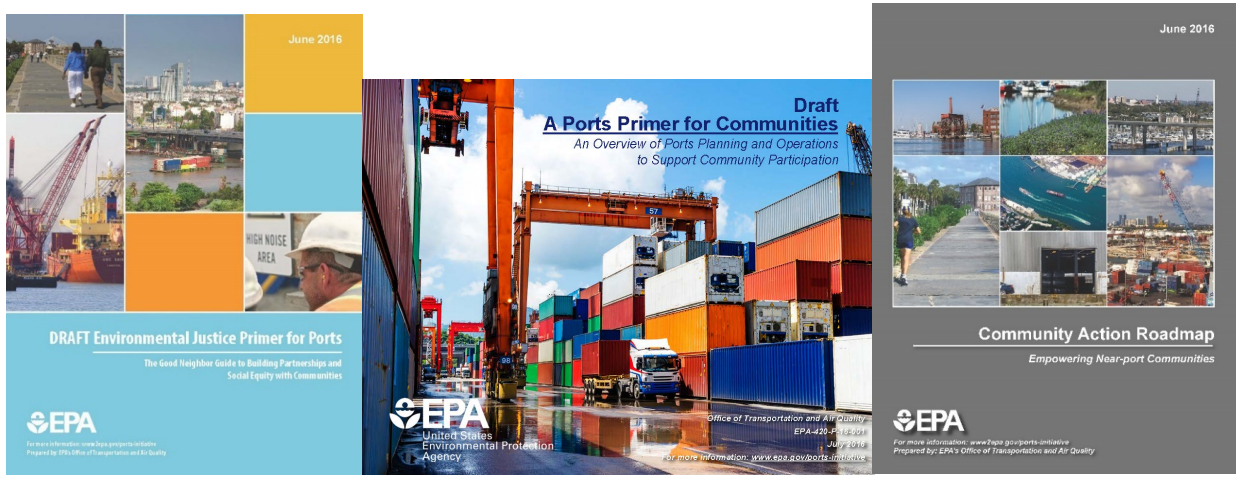
Factsheets on operational strategies *that can reduce emissions and increase efficiency such as vessel speed reduction and gate management*

Promoting community-port collaboration for effective planning

Collaboration

- EPA recently completed pilot projects where we convened stakeholder dialogues, delivered technical assistance, and tested three draft tools.
  - Toolkit: Ports Primer for Communities, Community Action Roadmap, and EJ Primer for Ports
  - Pilot locations: Savannah, GA; New Orleans, LA; Seattle, WA; and Providence, RI

- Now updating tools and finalizing other resource materials from pilots (e.g. case studies, training modules).



Port of Savannah Tour

Increasing efficiency in federal government and port operations

Coordination

- Federal coordination to support clean air projects as part of major federal infrastructure projects.
  - Strong OTAQ involvement in Committee on Marine Transportation System (e.g., co-leading Marine Innovative Science & Technology team) and FACA group advising MARAD (MTSNAC).

- Coordination with other EPA offices to amplify efforts and ensure effective implementation of activities.

ONE EPA Workplace

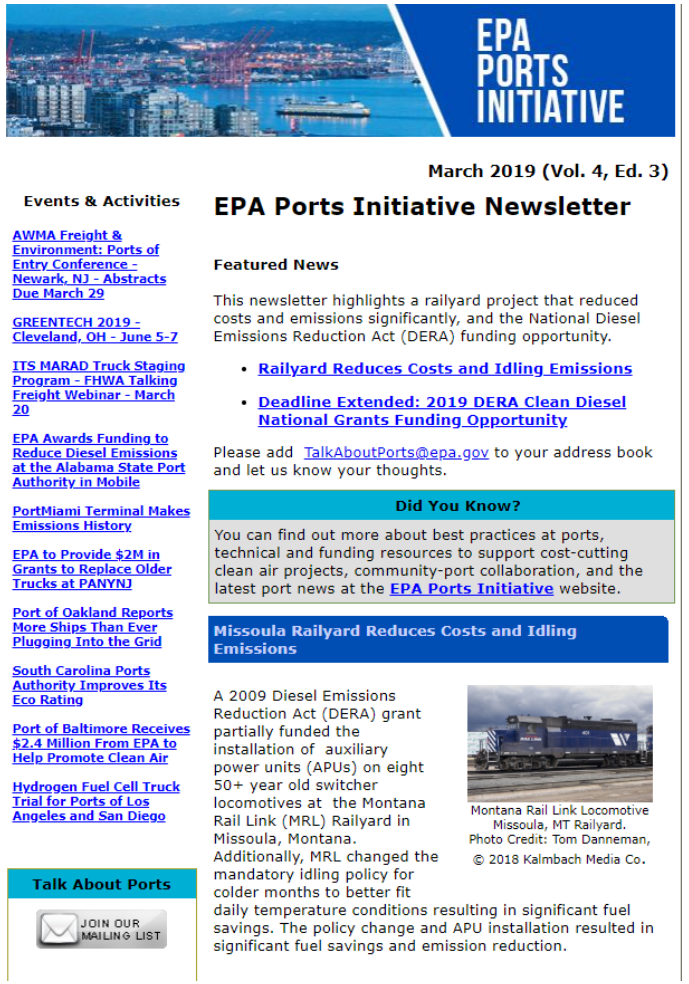
Creating a knowledge clearinghouse

Communications

HQ and Regions developing web resources, hosting public events, and engaging stakeholders to promote clean port projects.

Examples:

- Updated website, enhancements ongoing.
- Regular e-newsletters.
- Events as part of regional Diesel Collaborative forums.



EPA PORTS INITIATIVE

March 2019 (Vol. 4, Ed. 3)

Events & Activities

AWMA Freight & Environment: Ports of Entry Conference - Newark, NJ - Abstracts Due March 29

GREENTECH 2019 - Cleveland, OH - June 5-7

ITS MARAD Truck Staging Program - FHWA Talking Freight Webinar - March 20

EPA Awards Funding to Reduce Diesel Emissions at the Alabama State Port Authority in Mobile

PortMiami Terminal Makes Emissions History

EPA to Provide $2M in Grants to Replace Older Trucks at PANYNJ

Port of Oakland Reports More Ships Than Ever Plugging Into the Grid

South Carolina Ports Authority Improves Its Eco Rating

Port of Baltimore Receives $2.4 Million From EPA to Help Promote Clean Air

Hydrogen Fuel Cell Truck Trial for Ports of Los Angeles and San Diego

Talk About Ports

JOIN OUR MAILING LIST

EPA Ports Initiative Newsletter

Featured News

This newsletter highlights a railyard project that reduced costs and emissions significantly, and the National Diesel Emissions Reduction Act (DERA) funding opportunity.

- Railyard Reduces Costs and Idling Emissions
- Deadline Extended: 2019 DERA Clean Diesel National Grants Funding Opportunity

Please add TalkAboutPorts@epa.gov to your address book and let us know your thoughts.

Did You Know?

You can find out more about best practices at ports, technical and funding resources to support cost-cutting clean air projects, community-port collaboration, and the latest port news at the EPA Ports Initiative website.

Missoula Railyard Reduces Costs and Idling Emissions

Montana Rail Link Locomotive Missoula, MT Railyard. Photo Credit: Tom Danneman, © 2018 Kalmbach Media Co.

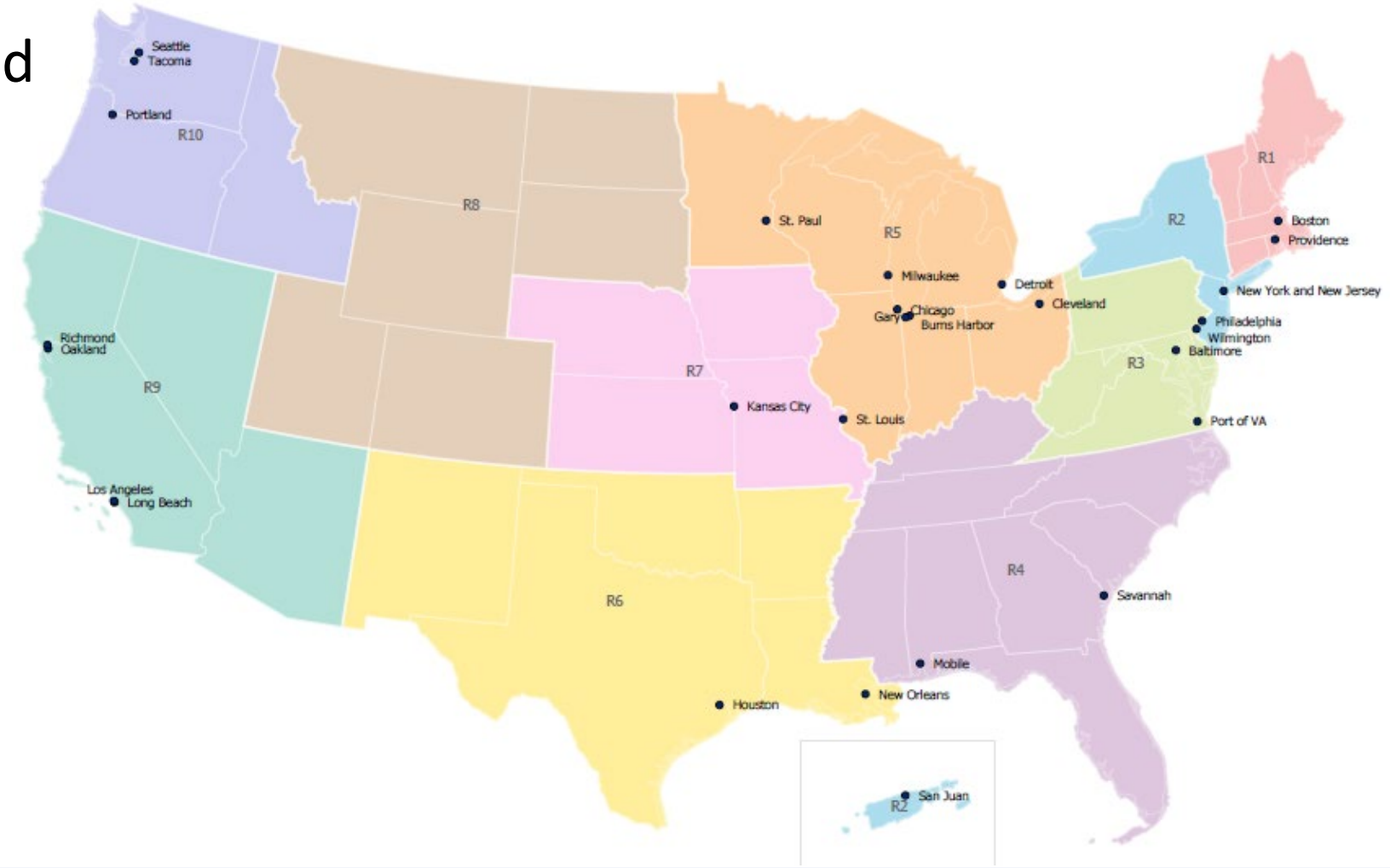
A 2009 Diesel Emissions Reduction Act (DERA) grant partially funded the installation of auxiliary power units (APUs) on eight 50+ year old switcher locomotives at the Montana Rail Link (MRL) Railyard in Missoula, Montana. Additionally, MRL changed the mandatory idling policy for colder months to better fit daily temperature conditions resulting in significant fuel savings. The policy change and APU installation resulted in significant fuel savings and emission reduction.

Supporting on-the-ground activities

Coordination

2019 activities spurring clean air advancements at ports and railyards across the country

- **Clean air projects**
- **Emissions assessments**
- **Community Engagement**



DERA: Diesel Emissions Reduction Program



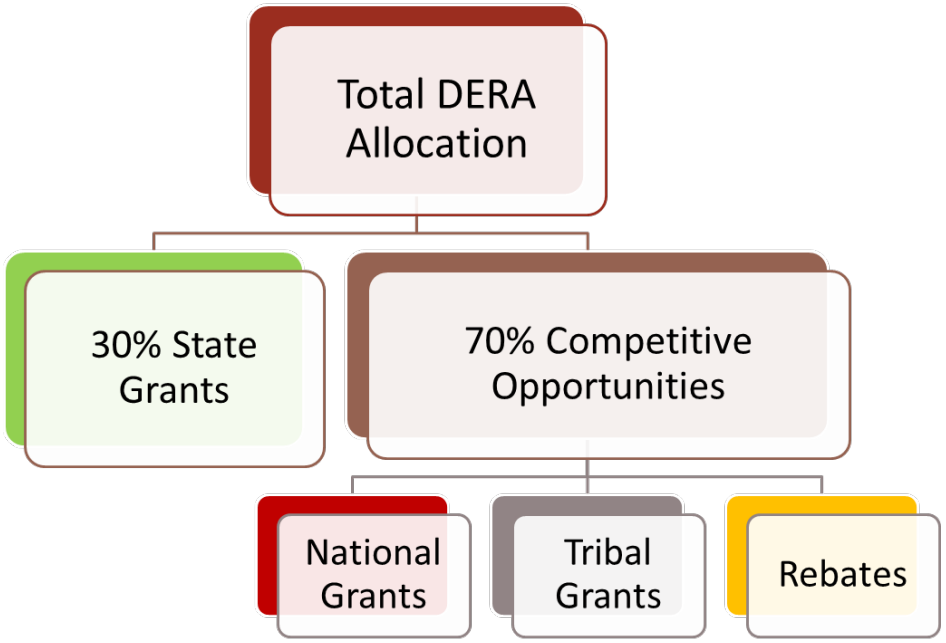

Why DERA?

- Nearly 10 million legacy diesel engines remain in service in the USA
- These engines are not equipped with modern emission control systems like Diesel Particulate Filters (DPFs) and Selective Catalytic Reduction systems (SCRs) that help achieve current emission standards
- Without incentives for faster fleet turnover, the longevity of diesel engines means these 10 million engines will continue to emit significant amounts of PM and NOx for many years to come
- Between 2008 and 2016, DERA yielded $7 to $19 billion in health benefits and prevented 1000 to 2300 premature deaths

DERA – Unique Federal Program

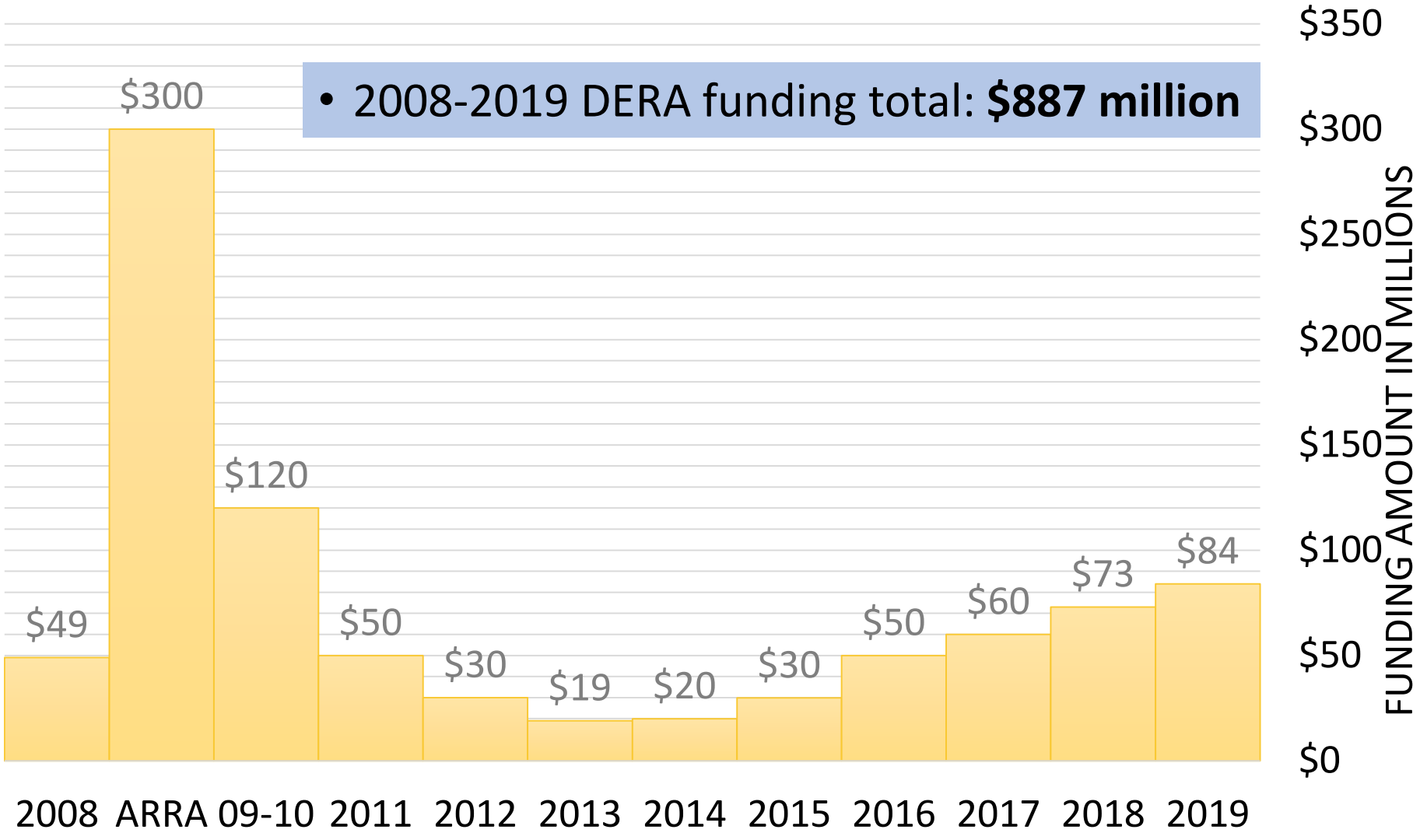
- Only Federal program that has specific purpose of reducing mobile source diesel emissions (2012 GAO Report)
- Other programs can target certain subsets of engines but those programs do not cover the entire legacy fleet
- Covers holistic suite of medium and heavy duty diesel engines
- Requires that results be reported (emissions reductions, cost-effectiveness, etc.)
- Continual bi-partisan and stakeholder support
- Always oversubscribed

DERA Overview



- The Diesel Emissions Reduction Act (DERA) was first authorized in 2005, funded in 2008, and reauthorized in 2010 through 2016
- DERA provides grant funding to eligible entities to achieve significant reductions in diesel emissions
- Each DERA subprogram targeted to stakeholders and fleet types

DERA Funding Amounts by Fiscal Year

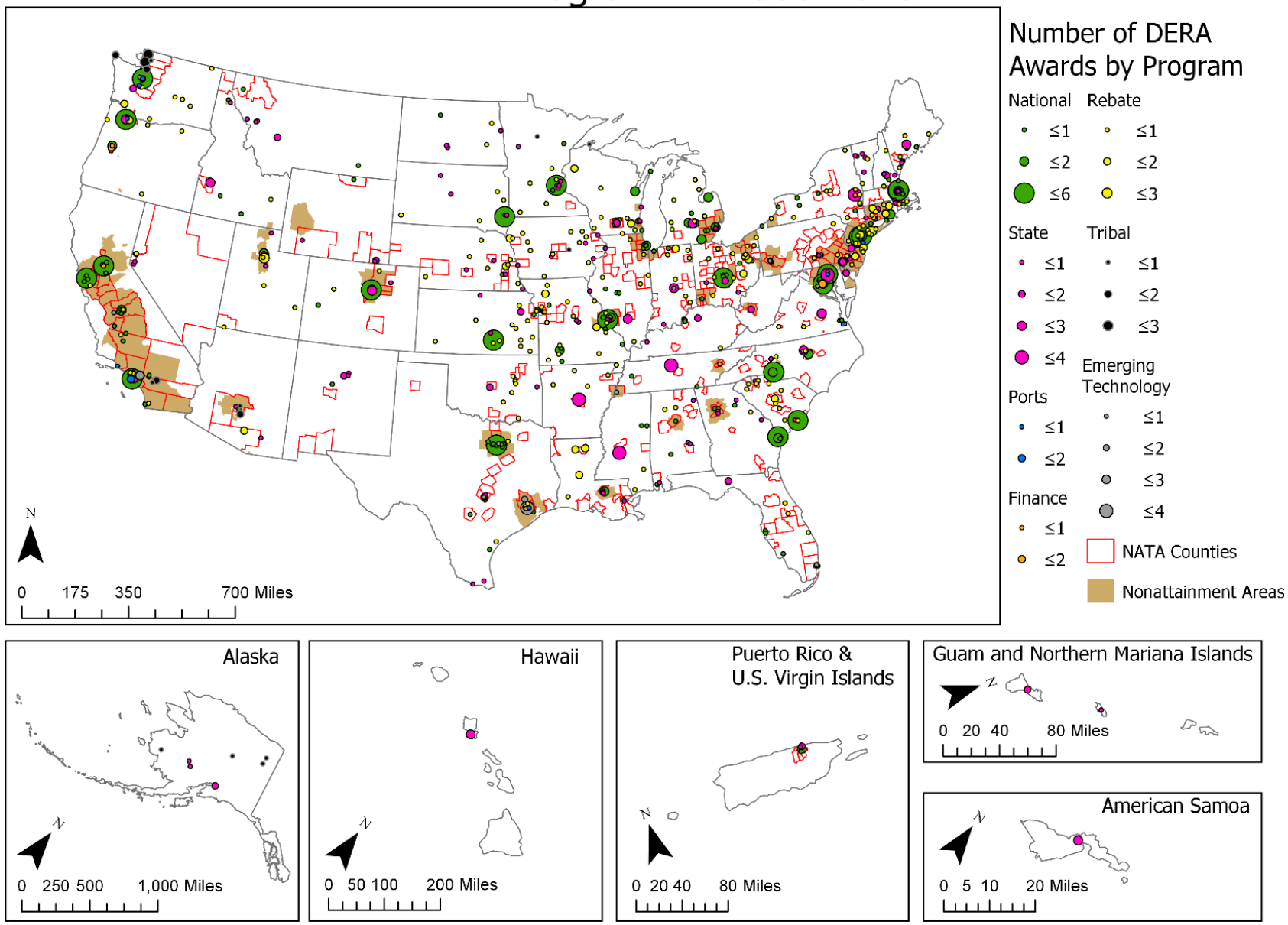


Report to Congress

The 4th DERA Report to Congress was released in July 2019. Previous Reports covered DERA 2008-2013. This Report specifically focused on FY 2014-2016 but also contains cumulative results.

DERA Program Benefits and Accomplishments FY 2008-2016	
Investment of DERA Program	**Emission and Fuel Reductions**
$629 million in awarded funds	472,200 tons of NOx
67,300 engines retrofitted or replaced	15,490 tons of PM
Up to $19 billion in monetized health benefits	17,700 tons of HC
Up to 2,300 fewer premature deaths	61,550 tons of CO
64% of projects targeted to areas with air quality challenges	5,089,170 tons of CO2
3:1 leveraging of funds from non-federal sources	454 million gallons of fuel saved

DERA Program FY 2008-2016



DERA: Future Steps

- Continued emphasis on ports and goods movement
- Continued emphasis on environmental justice areas with populations disproportionately affected by diesel exhaust
- Next funding opportunity: December, 2019
  - Incorporates changes designed to make program even more accessible
- www.epa.gov/cleandiesel for more info

Freight: Significant, complex, disruptive

- Moving goods is essential to businesses & communities
  - $18.1 trillion in value of goods shipped
  - 5.26 trillion ton-miles of freight (55 tons/person) each year
  - 13 million U.S. jobs related to freight
  - 8% of U.S. GDP ($1.6 trillion)
- Freight is not just one source or mode – it's an ecosystem of many actors across diverse sectors
- ..& it's growing faster than passenger transport
  - Freight activity could quadruple by 2050
- Technology is also changing faster than policy
  - Calls for innovative solutions to complement policies

Partnerships can enable more efficient, greener freight choices

- SmartWay partners voluntarily submit freight activity information using EPA's assessment and tracking tools
- Data merged with EPA emission factors to create environmental performance scores for each carrier type (e.g. truckload, tanker, logistics, rail)
- Results let companies readily see which carriers are greener choices
- EPA incentivizes further improvement:
  - Technical assistance and knowledge-sharing
  - Recognition and awareness

Positive results and influence

- As companies improve the efficiency of moving goods, they cut emissions and save money.
  - Since 2004, SmartWay's over 3,700 partners have saved 37 billion dollars in fuel costs while cutting 134 million tons of harmful emissions
- Demonstrating new practices and technologies with SmartWay helps these strategies gain traction and acceptance across industry
- The partnership builds trust and accelerates change to complement policy development
- Th SmartWay approach has served as a role model for other nations in N. America, Asia, S. America and elsewhere

"EPA's SmartWay Transport Partnership is an example of how the trucking industry can work in a way that improves the environmental sustainability of the global supply chain."
- Chris Spear, President and CEO, American Trucking Associations

Proud Supporter of SmartWay®

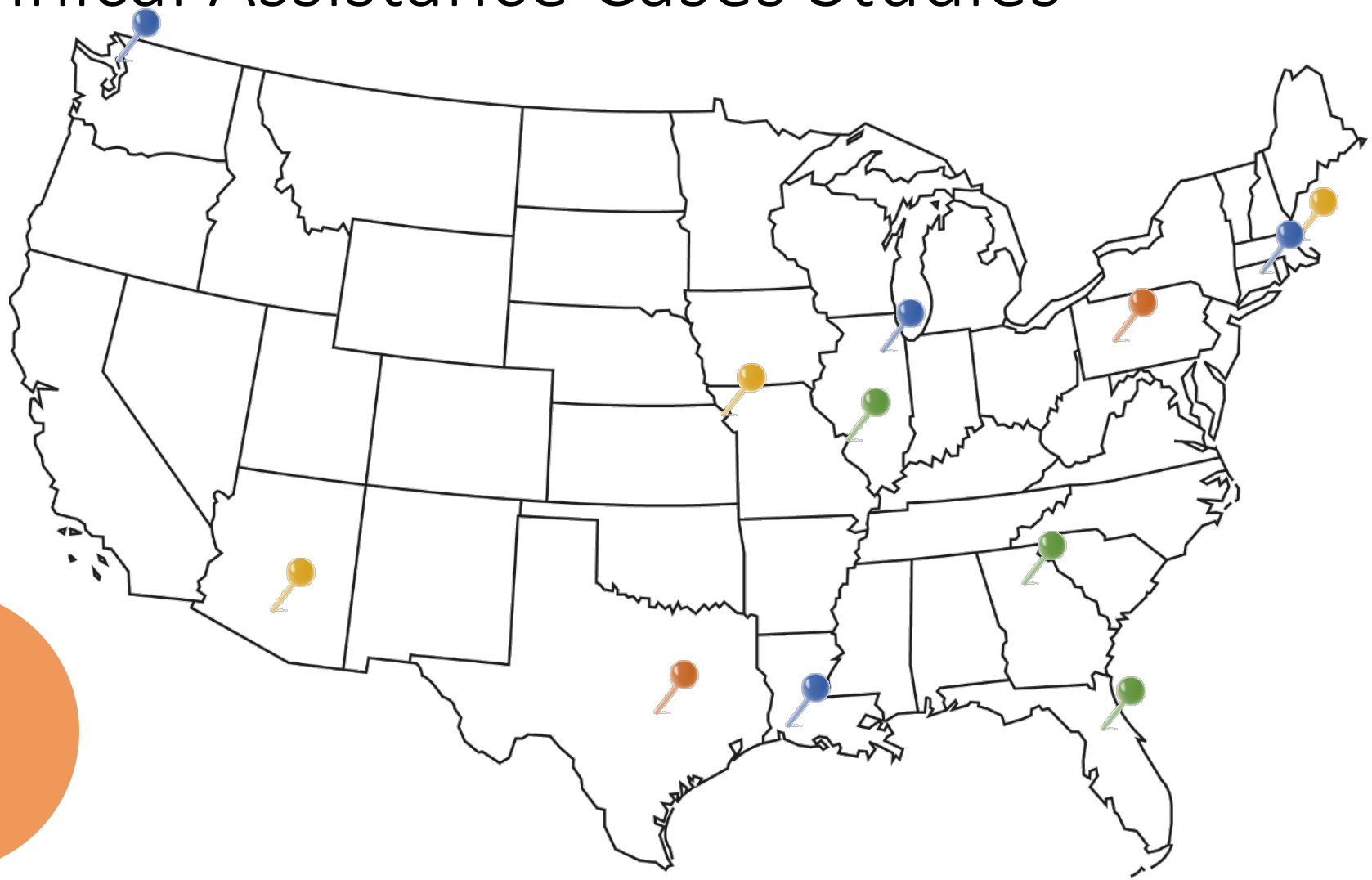
Travel Efficiency Assessment Method (TEAM) Technical Assistance Cases Studies

2014
Tucson
Kansas City
Boston

2016
St. Louis
Atlanta
Orlando

2018
Lake Charles
Seattle
Champaign
Connecticut

2019
Austin
Pittsburgh



Travel Efficiency Strategies

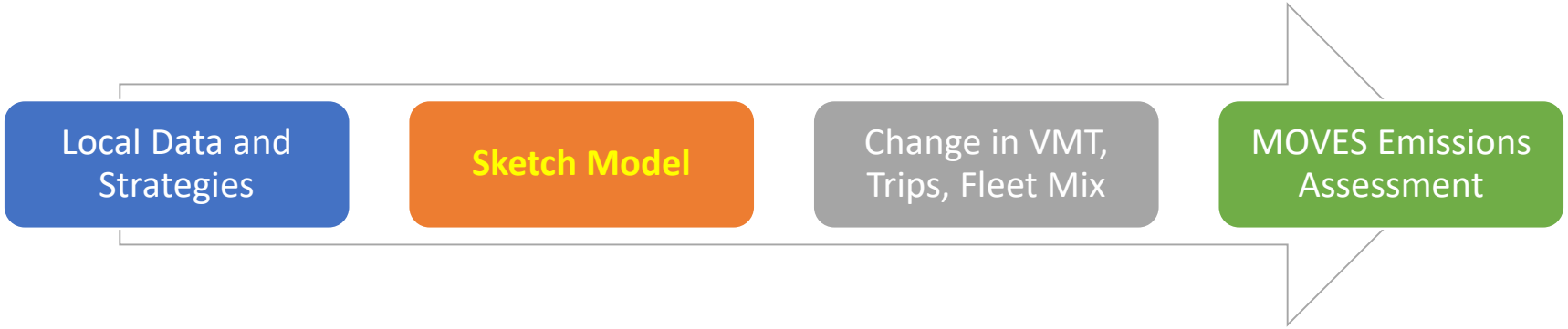
Strategies to reduce emissions by affecting travel activity – examples:

- Travel demand management
  - Telecommuting
  - Transit Subsidies
  - Carpool and Vanpool Programs
- Changes to public transit
  - Reduced Fares
  - Increased Frequency, Range
- Travel pricing
  - Road Pricing, Parking Pricing
- Changes to land use
  - TOD, Mixed Use, Jobs/Housing Balance

The Travel Efficiency Assessment Method (TEAM)

- A method to rapidly assess multi-pollutant emission reductions from hypothetical travel efficiency strategies and scenarios at the local, state and national level

- TEAM substitutes a sketch planning tool for the traditional 4-step transportation model

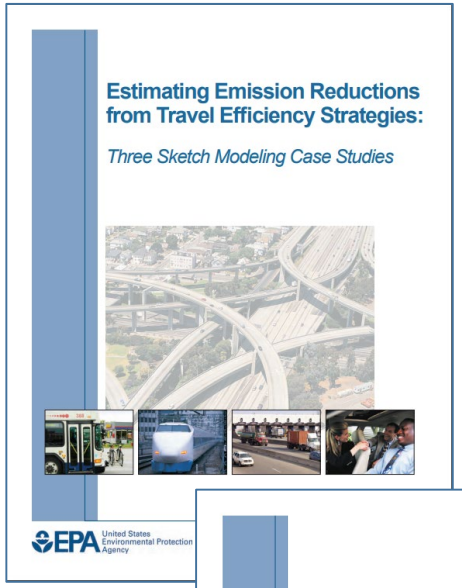


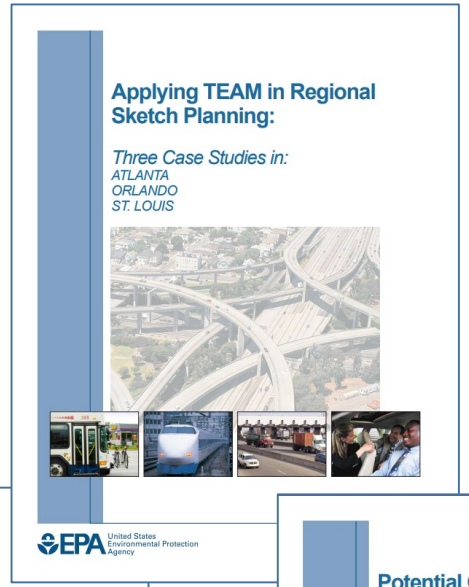
- MOVES is then applied based on streamlined activity inputs

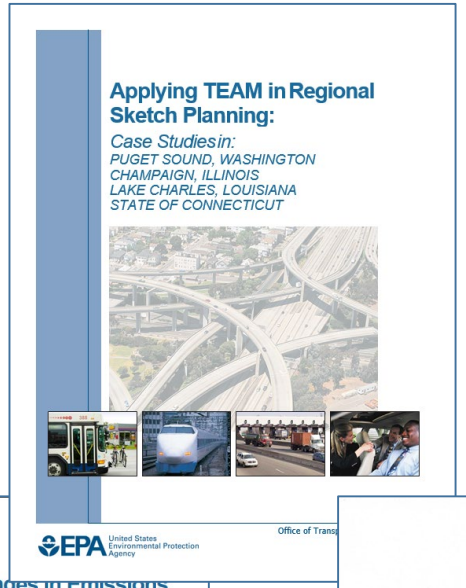
Major Findings

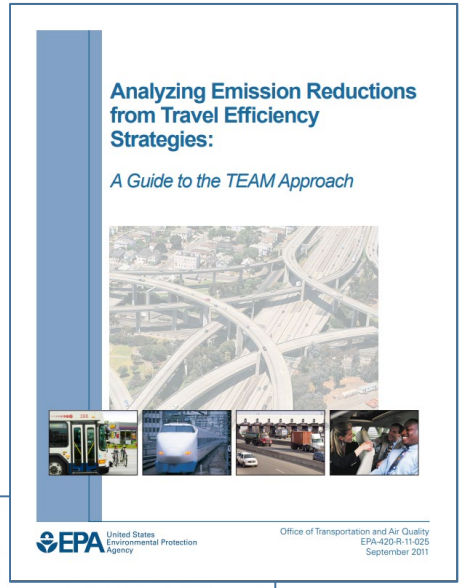
- Pricing strategies, such as parking pricing and VMT fees, have the biggest potential to reduce light-duty VMT and emissions
  - Generally, around 3.8% - 9.6% decrease from the BAU
- Smart growth and land use strategies also have large impact
  - Up to 6.4% decrease from the BAU
- Range of reduction potential is based on:
  - Level of implementation in proposed scenario, and
  - Policies/strategies already implemented in area, since we are comparing against the “business as usual” case
  - Ex: areas with current or planned high access to transit will have smaller additional VMT reduction from BAU than areas with limited transit access.

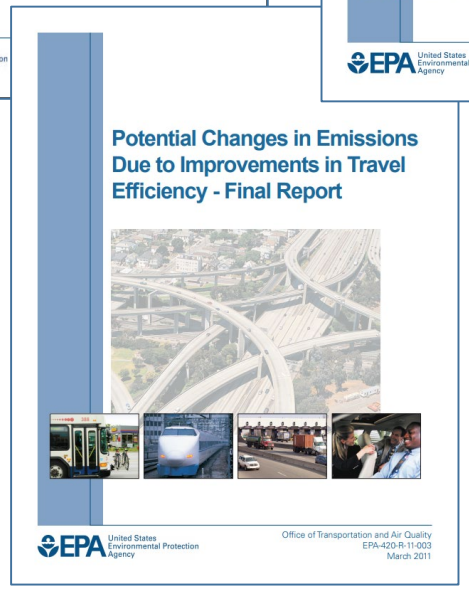
TE Resources: https://www.epa.gov/state-and-local-transportation/estimating-road-greenhouse-gas-emissions

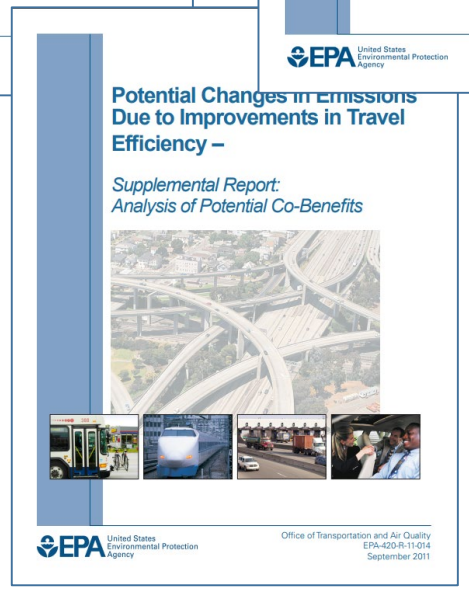


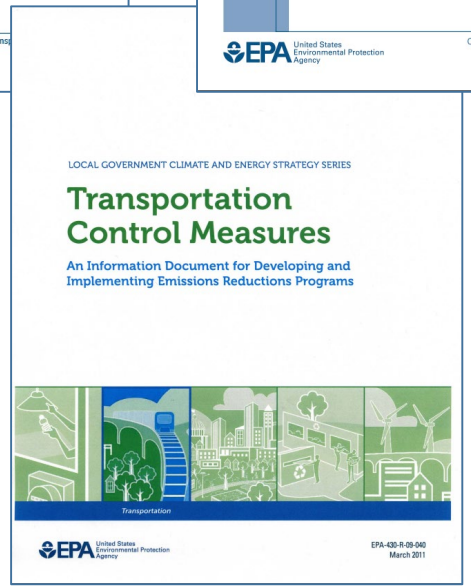












Green Racing Partnership

SAE INTERNATIONAL

SURFACE VEHICLE RECOMMENDED PRACTICE	J2880	JUN2014
	Issued 2008-10 Revised 2014-06 Superseding J2880 OCT2008	
(R) Recommended Green Racing Protocols		

RATIONALE

Earlier in its history, motorsport produced numerous innovations in performance, durability, and safety that were very often transferred to mass produced vehicles for road use. The Green Racing Protocols establish guidelines based on sound engineering and environmental principles to enable motorsport competition to again develop technologies and fuels that respond to current and future needs for road vehicles. By adopting Green Racing Elements from these Protocols, racing sanctioning bodies can at once enhance and provide a sustainable future for motorsport. Racing continues to serve as an excellent forum to demonstrate to the public that the advanced technologies and fuels embodied in Green Racing Elements are viable today, and foreshadow what will soon appear in their driveways. Furthermore, adopting Green Racing Elements can lead to more competitive and exciting racing, further strengthening the sport.

Green Racing's definition, mission, best implementation practices, and suggested awards are recommended to motorsports sanctioning bodies in these Protocols. It will become a Recommended Practice for all motorsports worldwide.

INTRODUCTION

Fundamental shifts in energy availability and prices, and the need to reduce exhaust emissions and the carbon footprint of transportation-related activities have altered the world in which racing operates. These shifts have created an opportunity for motorsports to engage and excite the public by contributing the solutions to some of today's most vexing problems. Now is the time for motorsports to respond to society's demands for sustainability of the mobility and energy industries to regain its relevance, restore its stature, and ensure its viability.

Technology development occurs in racing several times faster than in standard manufacturer vehicle development. Motorsport is in a unique position to promote rapid technical innovation and testing under demanding conditions – a requirement for market acceptance of sustainable transportation technologies. These Protocols align motorsports with demands for the transportation system to improve energy efficiency, promote energy diversity, and demonstrate environmental responsibility, while simultaneously supporting motorsport that is entertaining, exciting, cost effective, and safer. By capitalizing on the spirit of human achievement embodied in racing and using it to develop and promote efficiency-enhancing and environmentally-responsible technologies, motorsport can enhance its long-term survival.

1. SCOPE

These Protocols can be used for all forms of motorsports; however, only certain combinations of Green Racing Elements will result in motorsport competitions that are recognized as Green Racing events. As new information, fuels and technologies emerge, addendums or new protocols will be developed.

The SAE International (SAE) Motorsports Engineering Activity is also an invaluable source of reference materials and ongoing technical advice providing access to the constantly evolving set of best safety and operational practices for

Thank you!

For additional information, see:

- https://www.epa.gov/ports-initiative
- https://www.epa.gov/cleandiesel
- https://www.epa.gov/smartway
- https://www.epa.gov/state-and-local-transportation/estimating-road-greenhouse-gas-emissions
- https://www.imsa.com/imsagreen